



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/811,441	03/26/2004	Scott Michael Davis	147161-2	1481
<div>23413 7590 02/06/2008</div> <div>CANTOR COLBURN, LLP</div> <div>20 Church Street</div> <div>22nd Floor</div> <div>Hartford, CT 06103</div>				
<div>EXAMINER</div> <div>MORILLO, JANEL COMBS</div>				
<div>ART UNIT</div> <div>PAPER NUMBER</div> <div>1793</div>				
<div>MAIL DATE</div> <div>DELIVERY MODE</div> <div>02/06/2008</div> <div>PAPER</div>				

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 10/811,441	Applicant(s) DAVIS ET AL.	
	Examiner Janelle Combs-Morillo	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 21 November 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-23 and 28-31 is/are pending in the application.
- 4a) Of the above claim(s) 22 and 23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 and 28-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>11/21/07</u> | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 7, 10-14, 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over FR 2840246A1 (FR'246) optionally in view of Johnson et al (US 5,750,234).

FR'246 teaches a process for forming an article by a) heating a resinous substrate, b) contacting with shaped surface of a mold, c) thermoforming to bond said components at typically  $0.1 \times 10^5$  -  $1 \times 10^6$  Pa (10-1000 kPa), d) cooling between molds and demolding (abstract, p 6), substantially as claimed in instant claims 1, 7, 10-12. Concerning claims 13 and 14, FR'246 teaches thermoforming is achieved by a reduction of air pressure in the mold (abstract) and therefore 'air' meets 'a conformable pressure-transmitting medium'. Though FR'246 does not specify that the resinous substrate (to be heated in step a) is reinforced, FR'246 teaches reinforcement is applied to the thermoplastic resinous substrate (abstract). It would have been obvious to one of ordinary skill in the art to add reinforcement to the resinous substrate prior to initially thermoforming, because FR'246 teaches said reinforcement is capable of being thermoformed and bonded (abstract). Alternatively, Johnson is held to teach further motivation to thermoform a reinforced resinous material. Johnson teaches that finely divided particulate filler is added to a resinous top coat in order to provide a matte finish to the finished product (column 7 lines 9-12), wherein said filler is added before the product has been thermoformed

Art Unit: 1793

into the desired shape (column 8 line 66, etc). It would have been obvious to one of ordinary skill in the art to use a reinforced material taught by Johnson, in the process of thermoforming an article taught by FR'246, because Johnson teaches finely divided particulate filler is added to a resinous material prior to thermoforming for the predictable purpose of providing a matte finish to the finished product (column 7 lines 9-12).

Concerning claim 16, FR'246 teaches said resinous substrate can be a variety of polymer compositions, including polycarbonates (p 3).

3. Claims 2-6, 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over FR 2840246A1 (FR'246) optionally combined with Johnson as applied to claims above, and further in view of Mitten et al (US 2002/0182352A1).

FR'246 does not mention the use of tie layers (cl.2, 4, 6), additional film layers, compatible, or balance layers (cl. 3, 5, 15). Mitten, drawn to forming multilayered film structure with tie layers in-between other layers to promote adhesion, teaches at [0035] a variety of methods can be used to produce the 3-D plastic article, including thermoforming, injection molding, blow molding, etc. Mitten teaches that it is well known in the art to form multilayer shaped laminates by thermoforming laminate films with two or more layers and at least one bond-promoting tie layers, selected because said tie layers improve adhesion (p 7, [0040], [0045], [0062], [0063], [0035], abstract). Mitten further teaches thermoforming said layers (abstract). It would have been obvious to one of ordinary skill in the art to form additional film layers & tie layers, as taught by Mitten, for the thermoforming process taught by FR'246, because Mitten teaches said layers are selected for the predictable purpose of improving adhesion and bonding with a superior and economical formed product (abstract).

Art Unit: 1793

4. Claims 2-6, 8, 9, 15-21, 28-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over FR 2840246A1 (FR'246) optionally combined with Johnson as applied to claims above, and further in view of Realer et al (US 5,026,448).

FR'246 does not mention the use of tie layers (cl. 2, 4, 6), additional film layers, compatible, or balance layers (cl. 3, 5, 15, 31). However, Reafler teaches that it is well known in the art to form multilayer shaped laminates by thermoforming laminate films with two or more layers and at least one bond-promoting tie layers, selected because said tie layers improve adhesion (column 3 lines 42-45). Reafler further teaches thermoforming said layers (column 4 line 18). It would have been obvious to one of ordinary skill in the art to form additional film layers & tie layers, as taught by Reafler, for the thermoforming process taught by FR'246, because Reafler teaches said layers are selected to improve adhesion and bonding (abstract).

Concerning claim 15 and 31, it would have been obvious to one of ordinary skill in the art to apply a layer (such as that identical to the film/clearcoat layer taught by Reafler) to the substrate opposite the side of the film layer, in order to provide the predictable result of forming a protective and hard surface on said substrate (Reafler, see for instance abstract, column 4 lines 35-57).

FR'246 does not mention forming the shaped surface component by thermoforming said shape in a mold, followed by thermoforming/bonding it together with the heated substrate (cl. 7-9).

Concerning claims 8 and 9, it would have been obvious to one of ordinary skill in the art to thermoform a preformed layer with either a) not removing from the mold or b) placing in 2<sup>nd</sup> thermoforming mold, and further thermoforming these compatible layers, because Reafler

Art Unit: 1793

teaches sequentially thermoforming improves the desirable surface qualities when such materials are stretched by thermoforming and bonded to a substrate (column 2 lines 30-32), and depending on the intended thermoformed profile/ application (i.e. for an identical profile it would have been obvious to not remove from thermoforming apparatus in view of optimizing efficiency).

Concerning claims 20 and 21, it would have been obvious to one of ordinary skill in the art to thermoform a preformed layer and separately thermoforming the compatible substrate layer, and further thermoforming or adhesively bonding together (with a tie layer, etc), because Reafler teaches sequentially thermoforming in separate steps improves the desirable surface qualities when such materials are stretched by thermoforming and bonded to a substrate (column 2 lines 30-32).

Concerning claims 16-19, 28-30, FR'246 does not mention the surface component comprises an arylate polyester (cl. 16-19, 28, 29) or the polymers mentioned in claim 30, or including a compatible layer w additive for aesthetic effect (cl. 18). However, Reafler teaches a paint coated basecoat sheet (which qualifies as a compatible layer with an additive for aesthetic effect) bonded to a carrier film and bonded to a substrate by thermoforming (see Fig. 3a), with further clearcoat sheet and optional tie layers to improve bonding of the paint layer to the carrier film (column 3 lines 42-44). Reafler teaches the clearcoat sheet (includes surface component) can be made from polycarbonates, polyacrylates, polyurethanes, polyethylene terephthalate (column 4 lines 42-43, 57-58), which meets the composition in instant claims 28-30. It would have been obvious to one of ordinary skill in the art to use the composition of surface component and added tie layers and compatible layers taught by Reafler for the method of thermoforming taught by FR'246 because Reafler teaches said polymers form films that will stretch when heated

Art Unit: 1793

in thermoforming process and provide a smooth, glossy topcoat (column 4 lines 50-52), and because Reafler teaches said tie layer improves bonding (column 3 lines 42-45).

*Response to Arguments*

5. In the response filed on 11/21/2007 applicant added new claim 31. The examiner agrees that no new matter has been added.

6. As stated in the office action mailed 8/21/2007, the rejection in view of Dunton under 103(c) has been overcome.

7. Concerning the notation of reference on the IDS filed 6/15/2004 (international search report), the examiner maintains said reference will not be printed in the Notice of References Cited portion of a printed potential patent. The examiner notes that the serial number of co-pending case 10/807844 to Dunton was considered (see Notice of References Cited, mailed 4/2/2007).

8. Applicant's argument that the present invention is allowable over the prior art of record because FR'246 does not teach thermoforming of a reinforced substrate has not been found persuasive. FR'246 at abstract, see in particular title, teaches a process for thermoforming and bonding reinforcement to panel surfaces. Additionally, Johnson teaches further motivation to thermoform a reinforced substrate (see rejection above).

9. Applicant's argument that the present invention is allowable over the prior art of record because the prior art of Mitten teaches injection molding of tie layers to promote adhesion has not been found persuasive. Mitten, drawn to forming multilayered film structure with tie layers in-between other layers to promote adhesion, teaches at [0035] a variety of methods can be used

Art Unit: 1793

to produce the 3-D plastic article, including thermoforming, injection molding, blow molding, etc. It would have been obvious to one of ordinary skill in the art to perform the process of thermoforming as taught by FR'246 with tie layers as taught by Mitten, because Mitten teaches a variety of methods can be used to produce 3-D multilayered film structures, including thermoforming, and because Mitten teaches tie layers in said multilayered structure promote adhesion.

10. Applicant's argument that the present invention is allowable over the prior art of record because there is no motivation to combine FR'246 and Reafler has not been found persuasive. FR'246 teaches a process of thermoforming and bonding layers into a multilayered article for 'panel surfaces' (FR'246) and secondary reference of Johnson (drawn to thermoforming multilayered articles such as 'automotive skin material'), teaches motivation to select a reinforced layer as one of said layers to be processed by said thermoforming. Reafler (drawn to multilayered articles such as automotive sheet), teaches that tie layers can be used in-between other layers for the predictable purpose of promoting adhesion. It would have been obvious to one of ordinary skill in the art to use the composition of surface component and added tie layers and compatible layers taught by Reafler for the method of thermoforming taught by FR'246 because Reafler teaches said polymers form films that will stretch when heated in thermoforming process and provide a smooth topcoat (column 4 lines 50-52), and because Reafler teaches said tie layer improves bonding (column 3 lines 42-45).

11. Applicant's argument that the present invention is allowable over the prior art of record because Reafler does not teach separate thermoforming steps has not been found persuasive. Reafler at column 3 line 59-61 teaches the basecoat sheet and clearcoat sheet are separately



Art Unit: 1793

stretched & bonded by thermoforming (column 3 lines 59-61), wherein thermoforming includes heating, stretching, and bonding to a substrate (column 4 lines 8-10), as well as vacuum thermoforming (column 4 lines 18-19).

### *Conclusion*

12. Applicant's submission of an information disclosure statement under 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p) on 11/21/2007 prompted the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 609.04(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janelle Combs-Morillo whose telephone number is (571) 272-1240. The examiner can normally be reached on 8:30 am- 6:00 pm.

Art Unit: 1793

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JCM  
February 4, 2008

ROY KING  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700